

REMARKS:

In the Drawings:

Submitted herewith as a replacement sheet is a proposed drawing change to Figs. 1A-6, and 11 adding the words --(prior art)-- to the legend of each Fig.

In Fig. 7, the AP2 layer for "Head G" has been corrected to read --CoFe 17A--. Support for this amendment is found in Fig. 10 and related description at p. 19, lines 10-13 of the application as filed. No new matter has been added.

Claims 1-19

Claims 1, 11 and 23 have been rejected under 35 USC 102(e) as being anticipated by Hasegawa et al. (US 2003/0030434).

Claim 1 has been amended to require that the antiparallel (AP) pinned layer structure is formed directly on the NiFeCr seed layer. In sharp contrast, Hasegawa requires an antiferromagnetic (AFM) layer on the NiFeCr seed layer in all embodiments. Nowhere does Hasegawa suggest an AP pinned layer formed directly on an NiFeCr seed layer.

The invention of claim 1 is an improvement over Hasegawa, in that the AFM layer is not a necessary component of the claimed structure. One benefit of the claimed structure is that the total thickness of the structure is significantly reduced without an AFM layer between the seed layers and AP pinned layer structure. Further, current shunting through the AFM layer is eliminated in current-in-plane (CIP) heads. The result is that the dr/R (signal) is increased.

Accordingly, claim 1 is believed to be allowable over Hasegawa.

Claim 2 depends from claim 1 and is therefore also believed to be allowable.

Claim 3 has been amended to require that one of the AP pinned layers be constructed of CoFe and another of the AP pinned layer be constructed of substantially pure Co. The "substantially pure" language is merely meant to indicate that the Co may have insignificant amounts of impurities, but will not have significant amounts of other

metals. For instance, substantially pure Co would not include $\text{Co}_{90}\text{Fe}_{10}$, which is presented in the specification as an illustrative CoFe material. Reconsideration and allowance of claim 3 is respectfully requested.

Claim 4 depends from claim 3 and is therefore also believed to be allowable.

Claim 5 has been amended in a manner similar to claim 3. Allowance of claim 5 is respectfully requested.

Claim 6 ultimately depends from claim 1 and is therefore also believed to be allowable.

Claims 7 and 8 have been amended to remove the product by process claim, and now recite a purely structural limitation. As described in FIG. 7 and related description, the magnetostriction and GMR signal are alternately maximized depending on the materials used for the AP pinned layers and/or the thicknesses of the seed layers. Reconsideration and allowance of claims 7 and 8 are respectfully requested.

Claims 9-12 depend from claim 1 and are therefore also believed to be allowable.

Claim 13 has been amended that one of the AP pinned layers be constructed of CoFe and another of the AP pinned layer be constructed of substantially pure Co. As mentioned above, the “substantially pure” language is merely meant to indicate that the Co may have insignificant amounts of impurities, but will not have significant amounts of other metals. For instance, substantially pure Co would not include $\text{Co}_{90}\text{Fe}_{10}$, which is presented in the specification as an illustrative CoFe material. Hasegawa is devoid of this configuration. As described in the present specification, the claimed structure provides an improvement in both signal and magnetostriction. Reconsideration and allowance of claim 13 is respectfully requested.

Claims 14-16 depend from claim 13 and are therefore also believed to be allowable.

Claim 17 has been amended to require that the AP pinned layer each be constructed of substantially pure Co. As mentioned above, the “substantially pure” language is merely meant to indicate that the Co may have insignificant amounts of

impurities, but will not have significant amounts of other metals. For instance, substantially pure Co would not include $\text{Co}_{90}\text{Fe}_{10}$, which is presented in the specification as an illustrative CoFe material. Hasegawa is devoid of this configuration. As described in the present specification, the claimed structure provides an improvement in both signal and magnetostriction. Reconsideration and allowance of claim 17 is respectfully requested.

Claim 18 depends from claim 17 and is therefore also believed to be allowable.

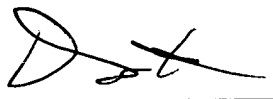
Claim 19 depends from claim 1 and is therefore also believed to be allowable.

Claim 20

New claim 20 has been added to vary the scope of the present invention. Claim 20 depends from claim 13, and is believed to be allowable for the same reasons as claim 13.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 971-2573. For payment of any additional fees due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-2587 (Order No. HSJ920030084US1).

Respectfully submitted,

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AMENDMENT TO THE DRAWINGS:

The attached sheets of drawings include changes to Figs. 1-6 and 11. These sheets replace the original sheets for Figs. 1-6 and 11.

In Figs. 1-6 and 11, the words --(prior art)-- have been added to the legends of the Figs.

In Fig. 7, the AP2 layer for "Head G" has been corrected to read --CoFe 17A--.